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A New Species of the Genus *Lygephila* BILLBERG
from Japan (Lepidoptera, Noctuidae)

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Abstract A new species of *Lygephila* is described from Japan. It has been hitherto confused with *L. recta*. This new species can be easily distinguished by male genitalia.

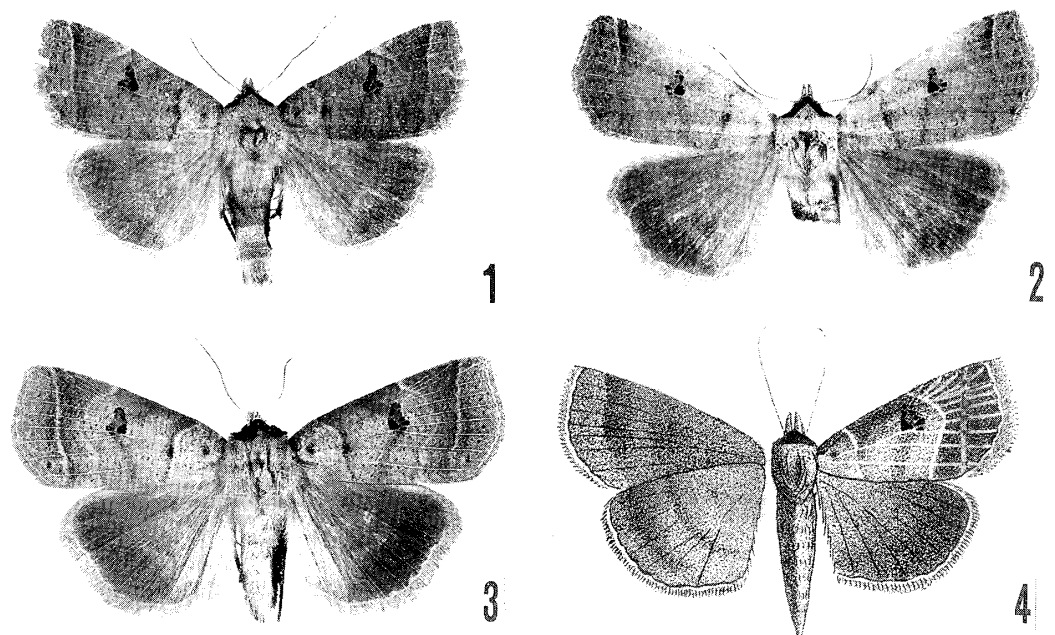
In Japan the genus *Lygephila* contains eight species; *L. maxima* (BREMER, 1861), *L. vulcanica* (BUTLER, 1881), *L. cracca* ([DENIS and SCHIFFERMÜLLER], 1775), *L. viciae* (HÜBNER, [1882]), *L. pastinum* (TREITSCHKE, 1826), *L. nigricostata* (GRAESER, 1890), *L. recta* (BREMER, 1864) and *L. subrecta* SUGI, 1982. Only the last one appears to be endemic to Japan (SUGI, 1964). In this paper one more new species, which has been hitherto confused with *L. recta*, is added to the Japanese fauna. This new species presents conspicuous characters of the genus *Lygephila* at vertex and patagium, i.e., the colour of both portions being blackish brown.

Lygephila ogatai sp. nov.

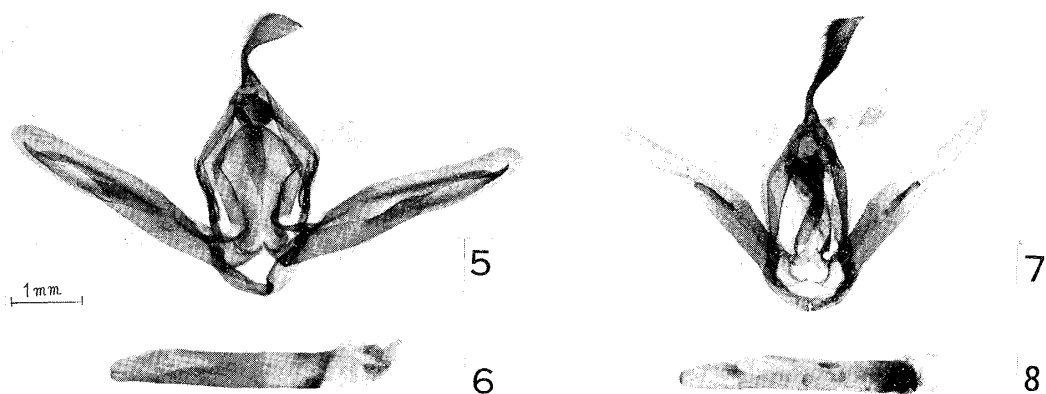
(Figs. 1–2, 5–6, 9, 11, 14–15, 18, 20)

Male. Palpi greyish brown, underside paler; the third segment in length one fifth of the second. Frons greyish brown. Vertex blackish brown. Antenna lustrous brown, filiform in appearance. Patagium blackish brown. Tegula greyish brown with violet tint, spotted sparsely with dark brown. Thorax greyish brown. Forelegs lustrous greyish brown. In any leg, tarsus darker than tibia and femur. Abdomen lustrous greyish brown, underside paler.

Wing. Upperside: Forewing greyish brown with somewhat lacteous and reddish tint, inconspicuously suffused with delicate dark brown. Inner line dark brown, rhombus under discoidal cell, hemmed obscurely with thready brownish yellow halfway from costa. Central line dim dark brown. Orbicular stigma traceable as a very small white dot. Inner margin of reniform stigma concave. Costal area the same as the ground colour or paler. Outer line yellowish brown from costa to M_1 , diminishing towards inner margin. Veins dirty yellow, conspicuous in outer third. The



Figs. 1-4. *Lygephila ogatai* sp. nov. and *L. recta* (BREMER). 1. *L. ogatai* sp. nov., holotype; 2. *Ditto*, paratype, ♀; 3. *L. recta*, ♀; 4. *Ditto*, holotype (After BREMER, 1864).

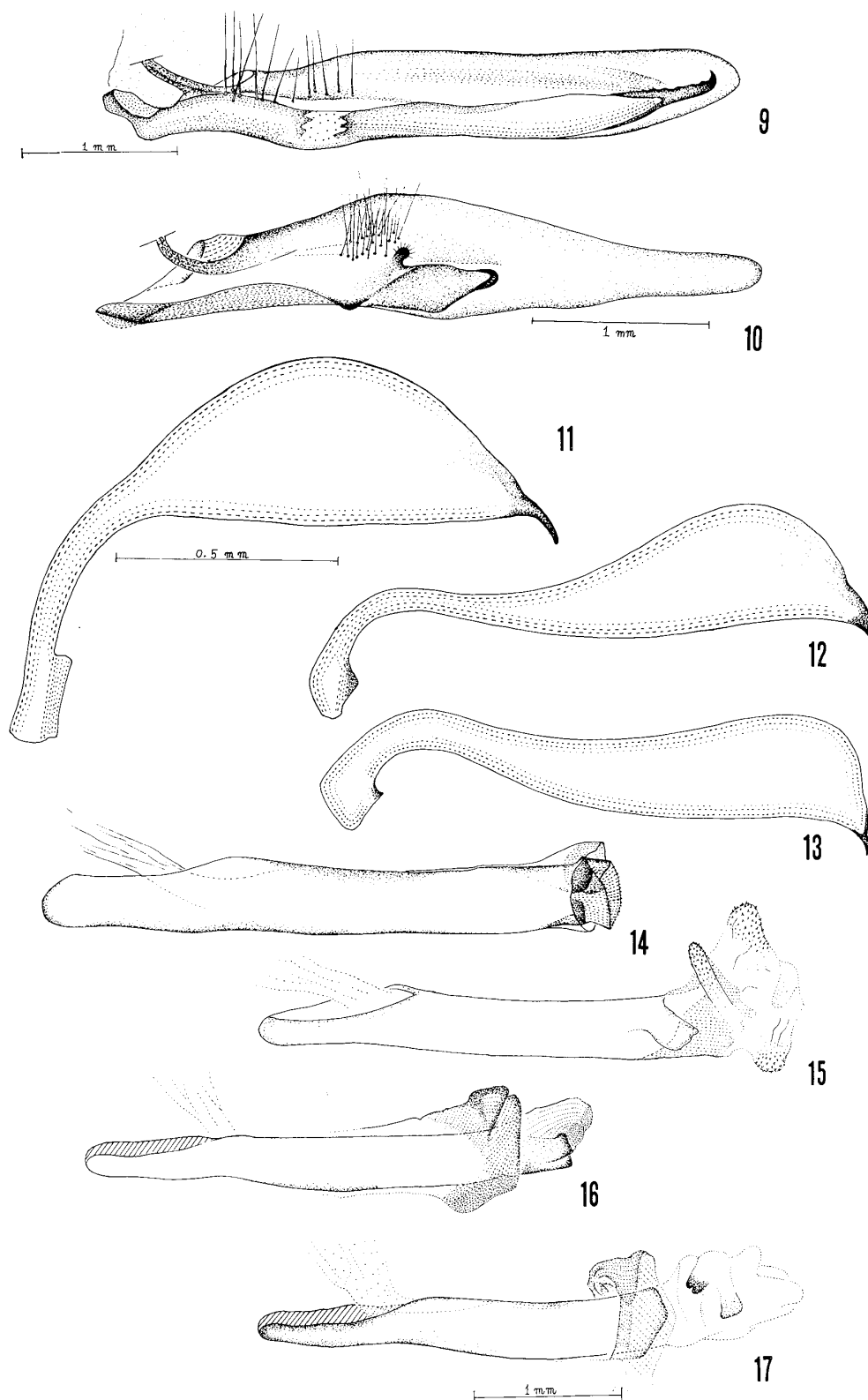


Figs. 5-8. Male genitalia. 5-6. *Lygephila ogatai* sp. nov.; 7-8. *L. recta* (BREMER).

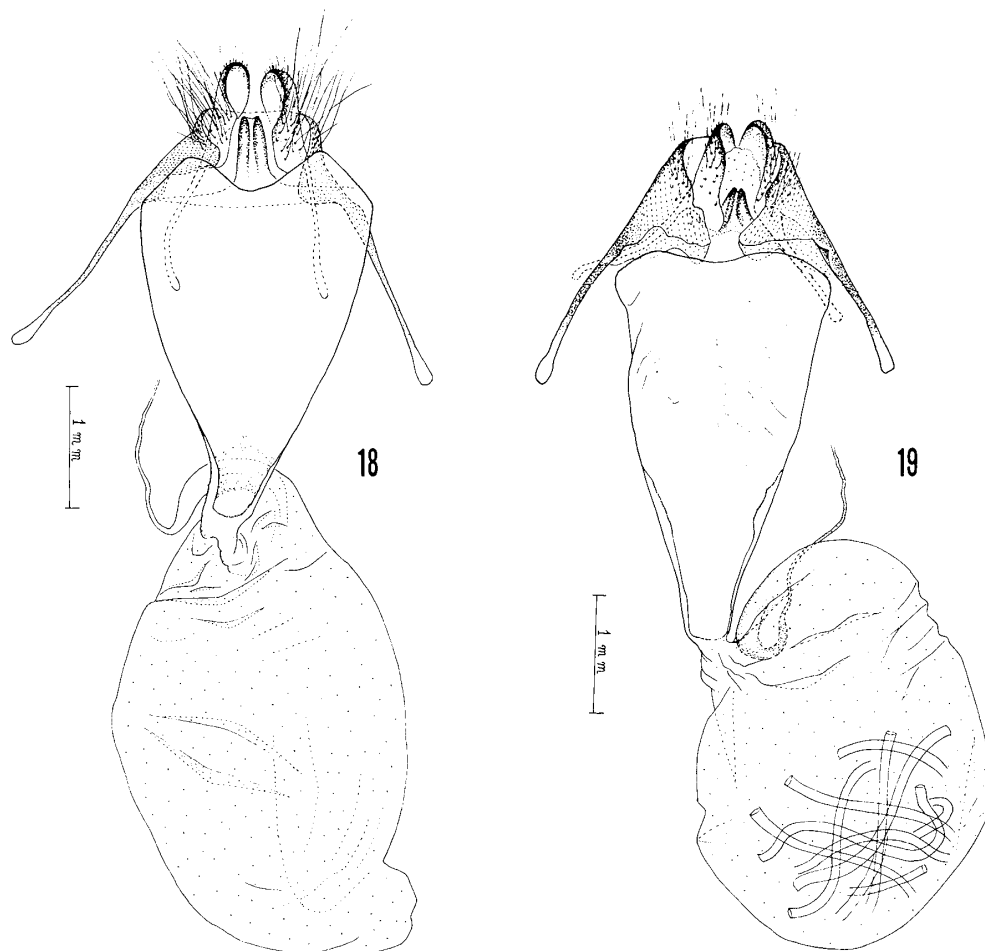
space between submarginal line and outer line blackish, fading away into ground colour towards inner margin. Submarginal line whitish yellow, merging into ground colour near to Cu_1 . Marginal line pale yellow. Cilia dull greyish brown mingled with white.

Hindwing dirty greyish brown. Discal spot slightly darker. Terminal shade brown with blackish tint. Outer line indistinct. Cilia as forewing, but slightly paler. Underside: Forewing lustrous greyish brown. Post discal darker. Discocellular marking vague blackish spot. Outer line slightly darker greyish brown.

Hindwing lustrous greyish brown with ochreous tint, paler towards basal. Postdiscal and outer lines dark greyish brown. Discal spot blackish brown.



Figs. 9–17. Male genitalia of *Lygephila ogatai* sp. nov. and *L. recta* (BREMER). 9. Right valva of *L. ogatai*; 10. Right valva of *L. recta*; 11. Uncus of *L. ogatai*; 12–13. Uncus of *L. recta*; 14. Aedeagus of *L. ogatai*; 15. Ditto, vesica extruded; 16. Aedeagus of *L. recta*; 17. Ditto, vesica extruded.



Figs. 18–19. Female genitalia. 18. *Lygephila ogatai* sp. nov.; 19. *L. recta* (BREMER).

Length of forewing: 18 mm.

Female. The same as in male, but different only in forewing upperside. Ground colour greyish brown, but much paler and more lacteous than in male. Outer and central lines more indistinct than in male.

Length of forewing: 18 mm.

Male genitalia (Figs. 5–6, 9, 11, 14–15). Uncus in lateral aspect semicircular on its dorsal margin; distal portion of uncus gently curving towards hooked apex, whose tip is slightly rounded; basal portion of uncus almost vertically prolonged to connect with tegumen. Valva; dorsoproximal margin of valva paralleled to ventroproximal margin of basal portion of harpe; apical portion of valva gently rounded; the tip of harpe strongly sclerotized, sharply pointed hook, and adjacent to apical portion of valva; dorsal margin of the hooked harpe slightly dentated. Phallus; vesica partly clothed with minute cornuti. Manica delicately thorned.

Female genitalia (Fig. 18). Copulatory cavity flat funnel form, narrowing towards its anterior portion and strongly sclerotized. Posterior margin of copulatory cavity with a pair of expandings.

Holotype: ♂, 18. II. 1981 (S. KINOSHITA leg.)

Paratypes: 30 ♂♂ 13 ♀♀, in total. 1 ♂ Sandanpeki, Shirahama, Wakayama, 29. III. 1984 (S. KINOSHITA); 2 ♂♂ 2 ♀♀, Murotsu, Mitsu-chô, Ibô-gun, Hyôgo, 12. III. 1983 (Y. KAKITANI); 1 ♀ same locality, 17. III. 1983 (K. INADA); 1 ♀, same locality, 14. III. 1982 (K. INADA); 4 ♂♂, same locality, 2. II. 1985 (K. INADA); 11 ♂♂ 4 ♀♀, same locality, 9. II. 1985 (K. INADA); 5 ♂♂, Fukui, Ibaraki, Osaka, 7. III. 1985 (S. KINOSHITA); 1 ♂, Same locality, 8. III. 1986 (S. KINOSHITA); 1 ♂ 2 ♀♀, same locality, 13. III. 1986 (S. KINOSHITA); 2 ♀♀, same locality, 27. III. 1986 (S. KINOSHITA); 2 ♂♂ Nagao, Hirakata, Osaka, 5. III. 1985 (T. SUGIYAMA) (preserved in KINOSHITA's collection), 1 ♀, Higashitada, Kawanishi, Hyôgo, 16. XI. 1983 (M. NATSUAKI); 1 ♂, Ishibashi, Ikeda, Osaka, 23. XI. 1980 (N. SASAKI); 1 ♂ Minoo-kôen, Osaka, 31. VIII. 1982 (M. NATSUAKI) (preserved in SASAKI collection), 1 ♂ Mifune-chô, Toyota-shi, Aichi, 7. III. 1976 (B. TANAKA) (preserved in TANAKA's collection).

Type depository: The Holotype is deposited in the collection of the Osaka Museum of Natural History, Osaka — OMNH TI-20.

Immature stage and food plant: Unknown.

Type locality: Fukui, Ibaraki-shi, Osaka-fu, Japan.

Geographical distribution: Osaka, Hyôgo, Wakayama and Aichi Prefecture, Japan (West half of Honshû) so far as known at the present time.

Remarks: *L. ogatai* is hardly distinguished in appearance from *L. recta* in spite of a great difference in genitalia. *L. ogatai* is separated by the following diagnostic characteristics from *L. recta*:

Upperside of forewing (both in male and female)

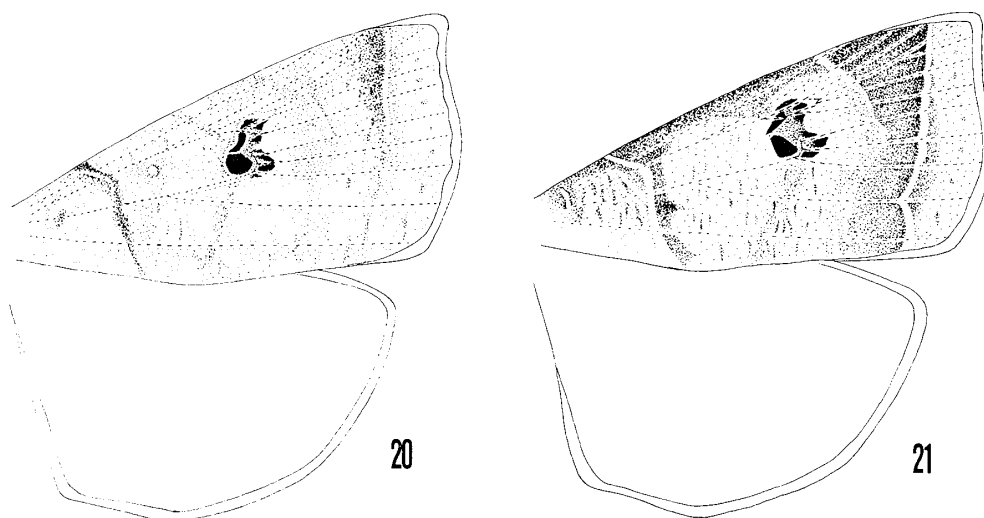
1. Forewing in the costal area greyish brown or somewhat paler, whereas this area of *L. recta* is more or less stained with dark brown shading.
2. The inner margin of reniform stigma is concave in *L. ogatai*, while convex in *L. recta*.
3. A very small white dot is discernible in the position of orbicular stigma, whereas it is untraceable in most individuals of *L. recta*.
4. The whitish yellow submarginal line merges into ground colour near to Cu₁, while that of *L. recta* runs from near apex to dorsum through.

Male genitalia

1. This new species has a sharply pointed hook at the tip of harpe, whereas the harpe of *L. recta* is short and weakly sclerotized and its apical portion is rounded.
2. Uncus of the new species is semicircular and broad at the middle portion in lateral aspect.
3. Cornuti of the new species are denser than those of *L. recta*.
4. The delicate thorns on manica of *L. ogatai* are sparser than those of *L. recta*.

Female genitalia

1. The copulatory cavity of the new species is flat funnel form, but broader than that of *L. recta*.
2. The posterior margin of copulatory cavity is bearing a pair of expandings in



Figs. 20–21. Right wings. 20. *Lygephila ogatai* sp. nov.; 21. *L. recta* (BREMER).

L. recta.

This new species has never been confused with other species of the genus *Lygephila* as far as the authors investigated, therefore here are briefly mentioned the diagnostic points to distinguish this new species from other seven *Lygephila* of Japan.

L. maxima, *L. vulcanica* and *L. nigricostata* are easily separated from *L. ogatai* by the size: i.e., the length of forewing ♂ 26–27 mm ♀ 29–31 mm in *maxima*, ♂ 23.5–24 mm ♀ 24 mm in *vulcanica* and ♂ 16 mm ♀ 17 mm in *nigricostata*. Moreover the ground colour of forewing is blackish brown in *maxima* and *vulcanica*, while greyish brown in *ogatai*. Forewing of *nigricostata* is dark brown with purplish hue at the costal and outer third, with lunular reniform stigma.

L. pastinum, *L. viciae*, *L. cracca*, *L. subrecta* and *L. ogatai* are almost the same in size. Here are picked out the characteristics of each species, which are important to distinguish the species in question from this new species.

L. pastinum: Forewing is violet grey with whitish tint, powdered with fragmentary brown streaks. Inner line is wide but vague, curving outward. Orbicular stigma is a black dot. Reniform stigma is triangular with two small spots outward. The veins are the same violet grey as its ground colour, while those of *L. ogatai* are dirty yellow. The outer third of forewing is darker. Hindwing is pale greyish brown, while that of *L. ogatai* is dirty greyish brown with blackish tint. Male genitalia; uncus is slender and cylindrical, gently curving ventrally, and its tip is pointed as keen as a needle; the length of uncus 1.3–1.4 mm. Harpe is weakly sclerotized and bifurcated at the apical portion with rounded tips.

L. viciae: Forewing is violet grey with whitish tint, but slightly more brownish than *L. pastinum*, and powdered with delicate brown. Inner line is wide, but indistinct. Orbicular stigma does not exist. Reniform stigma consists of six black dots in most cases. Veins are whitish yellow, paler than the ground colour. Submarginal line is distinct and greyish white. The area between outer line and submarginal line is highly

darker, consequently veins are conspicuous in this area. On the costal area there is mostly one black spot. Hindwing is greyish brown, but the inner half is paler, while that of *L. ogatai* is monotonous dirty greyish brown. Male genitalia ; uncus, whose tip is sharply pointed, is slender and cylindrical, and midway it bends vertically to ventral direction. Harpe, which is finger-shaped, arises near the apical portion of valva, and weakly sclerotized.

L. cracca : Forewing is violet grey with whitish tint. Forewing is less ample than *pastinum*, *viciae*, *subrecta* and *ogatai*. Inner, outer and submarginal lines are quite indistinct. Veins are whitish yellow. Orbicular stigma is a small black dot, but it is often lacking. Reniform stigma consists of three or four dark brown dots, and its inner margin is always convex. Three dark brown dots on costa are the most important characteristic. Hindwing is greyish brown in outer third, fading to whitish brown towards basal portion. Male genitalia ; uncus is falcate, slender and cylindrical with a sharply pointed tip, 2 mm in length, while that of *ogatai* is 1.2 – 1.3 mm in length. The harpe of *L. cracca* is of a short arm, which is weakly sclerotized. The most notable characteristic is the triangular ampulla which arises apically beyond harpe. Harpe, ampulla and the apical portion of valva seem as if they were composed of a triplicate structure.

L. subrecta : Forewing is greyish brown, and powdered with fragmentary brown streaks, which are more prominent than in *ogatai*. Inner line is distinct dark brown. The costal area is darker than the ground colour. Hindwing ; cilia are yellowish grey, while in *ogatai* dull greyish brown. Male genitalia ; uncus is the most prominent characteristic to separate *subrecta* from *ogatai* ; i.e., the typical “cygnated uncus” with a sharply pointed tip, whereas in *ogatai* semicircular uncus, whose tip is dull, and not so sharp as *subrecta*. In Japan *L. pastinum*, *L. cracca* and *L. subrecta* are reported hitherto only from Hokkaido (IIJIMA, 1977 ; KUSUNOKI, 1984 ; KOGI, 1979 and SUGI, 1976).

Acknowledgements

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Finally, the specific name *ogatai* is dedicated to Dr. Med. Masami OGATA, who has devoted himself to the development of the Lepidopterological Society of Japan.

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摘 要

Lygephila 属の一新種 (木下総一郎・佐々木昇)

L. recta ヒメクビグロクチバの中に♂交尾器のまったく異なる種が混同されていたことが判明した。外見上の区別は注意深く観察すれば可能である。特に前翅前縁部と腎状紋に *recta* との相異がよく表れている。♂交尾器での区別は容易であり、カギ状の *harpe* がその特徴となる。現在知られている産地は愛知県豊田市、和歌山県白浜、大阪府茨木市、池田市、箕面公園、兵庫県川西市である。この新種 *L. ogatai* の和名をナニワクビグロクチバとする。